

II. REMARKS

Formal Matters

Claims 1, 6, 7, 11-16, 21, 30, 31, and 36-39 are pending after entry of the amendments set forth herein. Claims 1, 6, 7, 11-16, 21, 30, 31, 36 and 37 were examined. Claims 1, 6, 7, 11-16, 21, 30, 31, 36 and 37 were rejected.

Claims 1, 15, 21, and 30 are amended. The amendments to the claims were made solely in the interest of expediting prosecution, and are not to be construed as acquiescence to any objection or rejection of any claim. Support for the amendments to the claim can be found in the claims as originally filed, figures, and throughout the specification. Accordingly, no new matter is added by these amendments.

Claims 2-5, 8-10, 17-20, 22-29, and 32-35 are canceled without prejudice to renewal, without intent to acquiesce to any rejection, and without intent to surrender any subject matter encompassed by the canceled claims. Applicants expressly reserve the right to pursue any canceled subject matter in one or more continuation and/or divisional applications.

Claims 38-39 have been added. Support for the newly added claims can be found throughout the claims, figures, and specification as originally filed. More specifically, support can be found at least at paragraph 0051 of the application as originally filed; and FIGS. 3B, 4, and 5 and corresponding description of the application as originally filed. Accordingly, no new matter is added.

Applicants respectfully request reconsideration of the application in view of the remarks made herein.

Rejection under 35 U.S.C. § 103

Claims 1, 6-7, 11-16, 21, 30-31 and 36-37 are rejected under 35 USC § 103(a) as being unpatentable over Tadigadapa et al. (US 6,477,901) in view of Sparks (US 6,647,778).

Tadigadapa teaches a micro-machined fluidic apparatus that has a free-standing tube section. The free-standing section of the tube is resonated for fluid flow and density measurements according to the Coriolis effect. (See, e.g., Abstract).

Tadigadapa does not teach or suggest a calorimeter tube (or reaction vessel) that comprises a coating layer comprising Aluminum, wherein electric current is provided through the coating layer to heat the calorimeter tube. Moreover, Tadigadapa does not teach or suggest an integrated heating device that provides current through the coating layer to heat the calorimeter tube and maintain a substantially constant temperature based on the detected bending of the calorimeter tube due to the different thermal expansions of the calorimeter tube and coating layer.

Claims 1, 15, 21, and 30 have been amended to require, in part that 1) the calorimeter tube (or reaction vessel) comprises Silicon, and further comprises a coating layer comprising Aluminum, 2) that the calorimeter

tube bends in response to a temperature change in the calorimeter tube due to different thermal expansions of the calorimeter tube and the coating layer; and 3) that an integrated heating device provides current through the coating layer to heat the calorimeter tube and maintain substantially constant temperature based on detected bending of the calorimeter tube due to the different thermal expansions of the calorimeter tube and coating layer. Therefore, Tadigadapa does not teach at least these limitations of the claimed invention.

Sparks teaches a micro-machined tube on a substrate for resonant sensing of mass flow and density of a fluid flowing through the tube. (See, e.g., Abstract). Sparks does not teach or suggest a U-shaped calorimeter tube that comprises a coating layer comprising Aluminum. Therefore, Sparks does not cure at least this deficiency of Tadigadapa.

Nor does Sparks teach that electric current is provided through a coating layer to heat the calorimeter tube. Rather, Sparks teaches electrodes formed on the exterior of the tube 14, in which current can be passed through the tube. Moreover, Sparks does not teach or suggest electric current passing through a coating layer comprising Aluminum to heat the calorimeter tube. Therefore, Sparks also does not cure at least this deficiency of Tadigadapa.

Further, Sparks specifically teaches maintaining the desired temperature based on either 1) the resonant frequency of the tube 14, 2) the resonant cantilevered tube 62, or 3) a thin-film metal resistor used as a temperature sensor. (Sparks; col. 7, ll. 11-15). (Sparks describes resistive temperature sensors that can be formed by thin-film metal layers of platinum, palladium or nickel. (See, e.g., Sparks; col. 6, ll. 61-63)). Therefore, Sparks only discusses temperature control based on these explicit methods.

Sparks does not teach or suggest an integrated heating device that provides current through the coating layer to heat the calorimeter tube and maintain a substantially constant temperature based on the detected bending of the coating layer due to the different thermal expansions of the calorimeter tube and coating layer. Rather, the detection in Sparks is due to vibration, resonance, or resistive-based temperature changes, (See, e.g., col. 6, ll. 1-6, 48-52, and 57-63). Therefore, Sparks also does not cure at least this deficiency of Tadigadapa.

Therefore, Applicants respectfully submit that, as amended, the combination of Tadigadapa in view of Sparks does not teach or suggest all limitations of claims 1, 15, 21, and 30; and thus does not render claims 1, 15, 21, and 30 obvious.

Claims 6-7, 11-12, 13-14, 16, 31, and 36-39 ultimately depend from one of claims 1, 15, 21, and 30, and thus include all limitations of the corresponding claim in which it depends. Therefore, Applicants respectfully submit that claims 6-7, 11-12, 13-14, 16, 31, and 36-39 are not rendered obvious by the combination of Tadigadapa and Sparks for at least the same reasons as for stated for claims 1, 15, 21, and 30.

Applicants respectfully submit that claims 1, 6-7, 11-16, 21, 30-31, and 36-39 are thus in a condition for allowance.

III. CONCLUSION

Applicants submit that all of the claims are in condition for allowance, which action is requested. If the Examiner finds that a telephone conference would expedite the prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

The Commissioner is hereby authorized to charge any underpayment of fees associated with this communication, including any necessary fees for extensions of time, or credit any overpayment to Deposit Account No. 50-0815, order number UCLA-013.

Respectfully submitted,
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